WHAT IS CLAIMED IS:

1. An optical switching system for switching optical signals in wavelength groups, the system comprising:

a first optical switching matrix having multiple inputs and multiple outputs and being operable to switch a composite optical signal composed of a plurality of optical channel signals from any one of a plurality of the inputs to any one of a plurality of the outputs;

at least one wavelength division demultiplexer coupled at its input to an output of the first optical switching matrix for dividing a composite optical signal into groups of optical channel signals;

a plurality of optical switching matrices each matrix having multiple outputs and multiple inputs at least one of which is coupled to a respective output of the wavelength division demultiplexer, each matrix being operable to switch a group of optical channel signals from any one of a plurality of the inputs to any one of a plurality of the outputs; and

at least one wavelength division multiplexer coupled at each of its inputs to an output of a respective one of the plurality of optical switching matrices and coupled at its output to one of the inputs of the first optical switching matrix.

2. An optical switching system comprising

a first layer for switching optical channels;

a second layer for switching a group of optical channels; and

a first coupler for grouping together optical channels of the first layer and coupling them to the second layer; and

a second coupler for ungrouping grouped optical channels of the second layer and coupling them to the first layer.

3. An optical switch as claimed in claim 2 wherein the optical channels are lambdas.

4. An optical switch as claimed in claim 2 wherein the group of optical channels is a lambda group.

5. An optical switch as claimed in claim 4 wherein the first coupler includes a multiplexer for forming a lambda group from adjacent lambdas.

6. An optical switch as claimed in claim 4 wherein the first coupler includes an interleaver for forming a lambda group from channel separated lambdas.

7. An optical switch as claimed in claim 4 wherein the second coupler includes a demultiplexer for forming adjacent lambdas from lambda groups.

8. An optical switch as claimed in claim 4 wherein the first coupler includes a deinterleaver for forming channel separated lambdas from lambda groups.

9. An optical switch as claimed in claim 2 wherein the second layer for switching grouped optical channels includes an optical plane switch.

10. An optical switch as claimed in claim 9 wherein the optical plane switch includes a four-port MEMS.

11. An optical switch as claimed in claim 9 wherein the optical plane switch includes a six-port MEMS.

12. An optical switch as claimed in claim 2 wherein the first layer for switching optical channels includes a plurality of optical plane switches.

13. An optical switch as claimed in claim 12 wherein one of the optical plane switches includes a four-port MEMS.

14. An optical switch as claimed in claim 12 wherein one of the optical plane switch includes a six-port MEMS.

15. An optical switch as claimed in claim 12 wherein each of the optical plane switches includes a four-port MEMS.

16. An optical switch as claimed in claim 12 wherein each of the optical plane switch includes a six-port MEMS.

17. An optical switch as claimed in claim 2 comprising a third coupler for combining grouped optical channels of the second layer.

18. An optical switch as claimed in claim 17 including a third layer for switching combined grouped optical channels.

19. An optical switch as claimed in claim 18 wherein the third layer includes a first plurality of input ports for coupling to optical fibers.

20. An optical switch as claimed in claim 18 wherein the third layer includes a first plurality of output ports for coupling to optical fibers.

21. An optical switch as claimed in claim 18 wherein the second layer includes a plurality of output ports for coupling to the second coupler.

22. An optical switch as claimed in claim 18 wherein the first layer includes a plurality of input ports for coupling to the second coupler.

23. An optical switch as claimed in claim 18 wherein the second layer includes a plurality of input ports for coupling to the first coupler.

24. An optical switch as claimed in claim 18 wherein the first layer includes a plurality of output ports for coupling to the first coupler.

25. An optical switch as claimed in claim 2 wherein the first coupler includes an optical amplifier for compensation for losses within the first layer and the first coupler.

26. An optical switch as claimed in claim 2 wherein the second coupler includes an optical amplifier for compensation for losses within the second layer and the second coupler.

27. An optical switching system comprising

a first logical layer for switching optical channels;

a second logical layer for switching a group of optical channels; and

a first coupler for grouping together optical channels of the first logical layer and coupling them to the second logical layer; and

a second coupler for ungrouping grouped optical channels of the second logical layer and coupling them to the first logical layer.

28. An optical switch as claimed in claim 27 wherein the second logical layer for switching optical channels includes an optical plane switch.

29. An optical switch as claimed in claim 28 wherein the optical plane switch includes a four-port MEMS.

30. An optical switch as claimed in claim 28 wherein the optical plane switch includes a six-port MEMS.

31. An optical switch as claimed in claim 27 wherein the first logical layer for switching optical channels includes a plurality of optical plane switches.

32. An optical switch as claimed in claim 31 wherein one of the plurality of optical plane switches includes the optical plane switch of the second logical layer.

33. An optical switch as claimed in claim 27 wherein the first coupler includes an optical amplifier for compensation for losses within the first logical layer and the first coupler.

34. An optical switch as claimed in claim 27 wherein the second coupler includes an optical amplifier for compensation for losses within the second logical layer and the second coupler.

35. An optical switching system for switching optical signals in wavelength groups, the system comprising:

a first optical switching matrix having multiple inputs and multiple outputs and being operable to switch a composite optical signal composed of a plurality of optical channel signals from any one of a plurality of the inputs to any one of a plurality of the outputs;

at least one first wavelength division demultiplexer coupled at its input to an output of the first optical switching matrix for dividing a composite optical signal into groups of optical channel signals;

a plurality of second optical switching matrices each matrix having multiple outputs and multiple inputs at least one of which is coupled to a respective output of the first wavelength division demultiplexer, each matrix being operable to switch a group of optical channel signals from any one of a plurality of the inputs to any one of a plurality of the outputs;

at least one first wavelength division multiplexer coupled at each of its inputs to an output of a respective one of the plurality of second optical switching matrices and coupled at its output to one of the inputs of the first optical switching matrix;

a plurality of second wavelength division demultiplexers each coupled at its input to an output of a respective one of the plurality of second optical switching matrices for dividing a group of optical channel signals into optical channel signals;

a plurality of third optical switching matrices each matrix having multiple outputs and multiple inputs at least one of which is coupled to a respective output of a respective one of the plurality of second wavelength division demultiplexers, each matrix being operable to switch an optical channel signal from any one of a plurality of the inputs to any one of a plurality of the outputs; and

a plurality of second wavelength division multiplexers, each second multiplexer coupled at each of its inputs to an output of a respective one of the plurality of third optical switching matrices for combining optical channels into a group of optical channels and coupled at its output to one of the inputs of a corresponding one of the plurality of second optical switching matrices.

36. An optical switching system for switching optical signals in wavelength groups, the system comprising:

a first optical switching matrix having multiple inputs and multiple outputs and being operable to switch a composite optical signal composed of a plurality of optical channel signals from any one of a plurality of the inputs to any one of a plurality of the outputs;

at least one first wavelength division demultiplexer coupled at its input to an output of the first optical switching matrix for dividing a composite optical signal into groups of optical channel signals;

a plurality of second optical switching matrices each matrix having multiple outputs and multiple inputs at least one of which is coupled to a respective output of the first wavelength division demultiplexer, each matrix being operable to switch a group of optical channel signals from any one of a plurality of the inputs to any one of a plurality of the outputs;

at least one first wavelength division multiplexer coupled at each of its inputs to an output of a respective one of the plurality of second optical switching matrices and coupled at its output to one of the inputs of the first optical switching matrix;

a plurality of second wavelength division demultiplexers each coupled at its input to a corresponding output of the first wavelength division demultiplexer for dividing a group of optical channel signals into optical channel signals;

at least one third wavelength division demultiplexer coupled at its input to an output of the first optical switching matrix for dividing a composite optical signals into optical channel signals;

a plurality of third optical switching matrices each matrix having multiple outputs and multiple inputs at least one of which is coupled to a respective output of a corresponding second wavelength division demultiplexer and at least one of which is coupled to a respective output of the third wavelength division demultiplexer, each matrix being operable to switch a group of optical channel signals from any one of a plurality of the inputs to any one of a plurality of the outputs;

a plurality of second wavelength division multiplexers, each multiplexer coupled at each of its inputs to an output of a respective one of the plurality of third optical switching matrices for combining optical channels into a group of optical channels and coupled at its output to one of the inputs of a corresponding one of the plurality of second optical switching matrices; and

at least one third wavelength division multiplexer coupled at each of its inputs to an output of a respective one of the plurality of third optical switching matrices and coupled at its output to one of the inputs of the first optical switching matrix.

37. An optical switching system for switching optical signals in wavelength groups, the system comprising:

a first optical switching matrix having multiple inputs and multiple outputs and being operable to switch a composite optical signal composed of a plurality of optical channel signals from any one of a plurality of the inputs to any one of a plurality of the outputs;

at least one first wavelength division demultiplexer coupled at its input to an output of the first optical switching matrix for dividing a composite optical signal into groups of optical channel signals;

a plurality of second optical switching matrices each matrix having first and second inputs and first and second outputs, the first input is coupled to a respective output of the first wavelength division demultiplexer, each matrix having first and second switch states, in the first state the first output is connected to the second output and in the second state the first input is connected to the second output and the second input is connected to the first output;

a plurality of second wavelength division demultiplexers each coupled at its input to the second output of a corresponding one of the plurality of optical switching matrices for dividing a group of optical channel signals into optical channel signals;

a plurality of third optical switching matrices each matrix having multiple outputs and multiple inputs, a subset of which is coupled to a respective output of the second , each matrix being operable to switch a group of optical channel signals from any one of a plurality of the inputs to any one of a plurality of the outputs;

at least one first wavelength division multiplexer coupled at each of its inputs to an output of a respective one of the plurality of second optical switching matrices and coupled at its output to one of the inputs of the first optical switching matrix; and

a first plurality of wavelength division multiplexers, each multiplexer coupled at each of its inputs to an output of a respective one of the plurality of optical switching matrices for combining optical channels into a group of optical channels and coupled at its output to one of the inputs of a corresponding one of the first plurality of optical switching matrices.